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     FILE 'CA' ENTERED AT 11:05:53 ON 28 JUN 2004
         E STOSCHEK A/AU
L1      6 S E3-4
L2  26077 S (SENSOR OR MICROSENSOR OR BIOSENSOR OR DETECTOR OR BIODETECTOR OR
           MICRODETECTOR OR (SENSING OR DETECT?)(1A)(ELEMENT OR
           DEVICE))AND(ARRAY OR PLURAL? OR MICROARRAY OR MULTIPLE)
L3   6552 S (SENSOR OR MICROSENSOR OR BIOSENSOR OR DETECTOR OR BIODETECTOR OR
           MICRODETECTOR OR (SENSING OR DETECT?)(1A)(ELEMENT OR
           DEVICE))(4A)(INTERFER? OR INTERACT? OR NOISE OR NOISY)
L4  33438 S (REDUC? OR REMOV? OR CORRECT? OR SUBTRACT? OR DECONVOLUT? OR
           CALIBRAT?)(4A)(INTERFER? OR INTERACT? OR NOISE OR NOISY)
L5    451 S L3 AND L4
L6    650 S L2 AND L3
L7     55 S L5 AND L6
L8   6933 S (SENSOR OR MICROSENSOR OR BIOSENSOR OR DETECTOR OR BIODETECTOR OR
           MICRODETECTOR OR (SENSING OR DETECT?)(1A)(ELEMENT OR
           DEVICE))(4A)(LOCAT? OR ARRANG? OR PLAC?)
L9     43 S L4 AND L8
L10    96 S L7,L9
L11    82 S L10 NOT PY>2002

=> d bib,ab 1-82

L11  ANSWER 7 OF 82  CA  COPYRIGHT 2004 ACS on STN
AN   135:244285  CA
TI   Selecting the sensor locations for inferential control of high-purity
     batch distillation columns
AU   Oisiovici, R. M.; Cruz, S. L.
CS   Dept. Engenharia, Sistemas Quimicos/FEQ/UNICAMP, Campinas, 13083-970,
     Brazil
SO   Advanced Control of Chemical Processes, a Proceedings Volume from the
     IFAC Symposium, Pisa, Italy, June 14-16, 2000 (2001), Meeting Date
     2000, Volume 3, 947-952.  Editor(s): Biegler, Lorenz T.; Brambilla,
     Alessandro; Marchetti, G. Publisher: Pergamon Press, Oxford, UK.
AB   The influence of the sensor locations on the compn. control of high-
     purity batch distn. columns was investigated.  A GLC control law was
     implemented and an Extended Kalman Filter was developed to est. the
     required compns. from temp. measurements.  It was found that, depending
     on the sensor locations, the control actions can be corrupted by noise.
     Placing the sensors away from the top stages reduced the detrimental
     effects of noise but increased the inference error.  To achieve a tight
     compn. control, both noise redn. and compn. est. accuracy should be
     considered in the selection of the sensor locations.

L11  ANSWER 9 OF 82  CA  COPYRIGHT 2004 ACS on STN
AN   135:53379  CA
TI   Noise reduced semiconductor photon detectors
IN   Gordon, Neil Thomson; White, Anthony Michael; Elliott, Charles Thomas
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PA The Secretary of State for Defence, UK
SO Brit. UK Pat. Appl., 22 pp.

PI	GB 2354369	A1	20010321	GB 1999-21888	19990917
	US 6359283	B1	20020319	US 1999-451111	19991130
PRAI	GB 1999-21888	A	19990917		

AB Photon **detectors** (esp. IR **detectors**) including an **array** of **detector elements** are described which comprise ≥1 of isolating means for isolating each element from photons emitted by other elements and other regions of the **detector**, an **arrangement** of **detector elements** which exhibit neg. luminescence and thereby reduced photon emission, and a structure arranged to exhibit neg. luminescence and to absorb photons which would otherwise propagate to **detector elements** and give rise to photon noise.

L11 ANSWER 11 OF 82 CA COPYRIGHT 2004 ACS on STN
AN 134:350108 CA
TI Protein contact printing for a surface plasmon resonance **biosensor** with on-chip referencing
AU Lu, H. B.; Homola, J.; Campbell, C. T.; Nenninger, G. G.; Yee, S. S.; Ratner, B. D.
CS Department of Bioengineering, University of Washington, Seattle, WA, 98195, USA
SO Sensors and Actuators, B: Chemical (2001), B74(1-3), 91-99
AB Protein contact printing (pCP) has been applied to locally functionalize a novel wavelength-modulated single flow channel surface plasmon resonance (SPR) **sensor** with an on-chip ref. The SPR **sensor** has a high refractive index dielec. tantalum pentoxide (Ta_2O_5) overlayer covering part of the gold sensing surface to generate a SPR resonance (SPR-Ta) that is spectrally-sepd. from the resonance of the Ta_2O_5-free Au resonance (SPR-Au). Thus, an on-chip ref. channel is provided [Electron. Lett. 35 (1999) 1105]. This communication demonstrates that pCP can be used for functionalizing such dual-channel SPR **sensors**. By using pCP, bovine serum albumin (BSA) was shown to passivate the surfaces well enough to prevent non-specific protein adsorption. In contrast, the printed 2,4-dinitrophenylated BSA (DNP-BSA) was recognized specifically by anti-dinitrophenyl antibodies (α-DNP) in soln. By printing DNP-BSA and BSA onto the Au and Ta_2O_5 surfaces, resp., we demonstrate that the reversible bulk refractive index changes presented in both signals can be canceled out. Therefore, a more accurate binding curve for the α-DNP/DNP **interaction** can be obtained by **subtracting** the properly scaled SPR-Ta ref. signal from the SPR-Au signal. We show that pCP is a simple, efficient, and versatile method for delivering **multiple** proteins with sufficient surface coverage and activity onto such **sensor** surfaces without cross-**interference** to adjacent areas.

L11 ANSWER 13 OF 82 CA COPYRIGHT 2004 ACS on STN
AN 134:320214 CA
TI Elimination of High-Voltage Field Effects in End Column Electrochemical Detection in Capillary Electrophoresis by Use of On-Chip Microband

Electrodes
AU Klett, Oliver; Bjoerefors, Fredrik; Nyholm, Leif
CS Department of Analytical Chemistry, Uppsala University, Uppsala, 751 21, Swed.
SO Analytical Chemistry (2001), 73(8), 1909-1915
AB The influence of the sepn. voltage on end column electrochem. detection (EC) in capillary electrophoresis (CE) was studied using an electrochem. **detector** chip based on an **array** of microband electrodes. It is shown, both theor. and exptl., that the effect of the CE elec. field on the detection can be practically eliminated, without using a decoupler, by positioning the ref. electrode sufficiently close to the working electrode. This was demonstrated by using an exptl. setup in which neighboring microband electrodes on a chip, positioned 30 μm from the end of the CE capillary, were used as working and ref. electrodes, resp. The short distance (i.e., 10 μm) between the working and ref. electrode ensured that both of the electrodes were very similarly affected by the presence of the CE elec. field. With this exptl. setup, no significant influence of the CE voltage on the peak potentials for Au oxide redn. could be seen for CE voltages up to +30 kV. The **detector noise** level also is **reduced**.

L11 ANSWER 19 OF 82 CA COPYRIGHT 2004 ACS on STN
AN 132:266856 CA
TI High-Speed Fluorescence Detection of Explosives-like Vapors
AU Albert, Keith J.; Walt, David R.
CS The Max Tishler Laboratory for Organic Chemistry Department of Chemistry, Tufts University, Medford, MA, 02155, USA
SO Analytical Chemistry (2000), 72(9), 1947-1955
AB In this paper, the prepn. is reported of novel cross-reactive optical **microsensors** for high-speed detection of low-level explosives and explosives-like vapors. Porous silica microspheres with an incorporated environmentally sensitive fluorescent dye are employed in high-d. **sensor arrays** to monitor fluorescence changes during nitroarom. compd. (NAC) vapor exposure. The porous silica-based **sensor** materials have good adsorption characteristics, high surface areas, and surface functionality to help maximize analyte-dye interactions. These interactions occur immediately upon vapor exposure, i.e., in less than 200 ms and are monitored with a high-speed charge-coupled device camera to produce characteristic and reproducible vapor response profiles for individual **sensors** within an **array**. Employing thousands of identical **microsensors** permits **sensor** responses to be combined, which significantly **reduces sensor noise** and enhances detection limits. Normalized response profiles for 1,3-dinitrobenzene (1,3-DNB) are independent of analyte concn., analyte exposure time, or **sensor** age for an **array** of one **sensor** type. Explosives-like NACs such as 2,4-dinitrotoluene and DNB are detected at low part-per-billion levels in seconds. **Sensor**-analyte profiles of some **sensor** types are more sensitive to low-level NAC vapor even when in a higher org. vapor background. The single-element **arrays** permit the detection of low-level nitroarom. compd. vapors because of **sensor**-to-**sensor** reproducibility and signal averaging.

L11 ANSWER 23 OF 82 CA COPYRIGHT 2004 ACS on STN
AN 130:212981 CA
TI Non-dispersive infrared gas analyzer with **interfering** gas **correction**
IN Lessure, Harold S.; Simizu, Satoru; Denes, Louis J.; Guzman, Alberto M.
PA American Intell-Sensors Corporation, USA
SO U.S., 20 pp.
PI US 5886348 A 19990323 US 1997-801942 19970214
PRAI US 1997-801942 19970214
AB An IR gas analyzer for measuring low concns. of a target gas, on the order of ppm, in a sample gas is comprised of a gas sampling chamber, an IR light source, and a power source for energizing the light source. A **plurality** of filters is provided to transmit IR radiation at certain wavelengths. The wavelengths are chosen such that the effects of unwanted gases (such as water and carbon dioxide) can be removed from the final output signal. A **plurality** of IR **detectors** are responsive to the filters for producing a **plurality** of elec. signals. A circuit is provided for combining the **plurality** of elec. signals to produce an output signal representative of the concn. of the target gas independently of other gases in the sample gas. A method of measuring low concns. of a target gas is also disclosed.

L11 ANSWER 30 OF 82 CA COPYRIGHT 2004 ACS on STN
AN 128:215239 CA
TI Chemistry analyzer
IN Carbonari, Larry Alfred; Turpen, Jon D.
PA Bio-Chem Laboratory Systems, Inc., USA
SO U.S., 18 pp.
PI US 5730938 A 19980324 US 1995-512894 19950809
PRAI US 1995-512894 19950809
AB A carousel receives a **plurality** of removable reagent containers, a turntable receives a **plurality** of sample fluid containers and a rotatable cuvette assembly holds an annular **array** of reaction and test cuvettes. A robotic arm carrying a fluid transfer needle coupled to a pair of syringes picks up one or more reagents and sample fluid for deposit into a cuvette. As the arm moves the needle tip exterior is washed and contaminants sent to a waste collector. At the end of a test cycle, the needle core is flushed and cleaned. A colorimetry photometric test is performed on the reacted fluids in each cuvette by a system employing ten **interference** filters, corresponding diode **detectors** and amplifiers employing two identical multiplexers providing identical filtered signals for logarithmic calcn. of absorbance. The calcn. **subtracts** a **noise** base level signal of one filter output from one multiplexer from a peak level signal produced by a second filter output from the other multiplexer for each component under test. A reciprocating plunger aspirates and cleans each cuvette at a single cleaning station employing **multiple** reciprocating motions. The photometric test is completed on all cuvettes in a single test cycle which are subsequently cleaned for the next test sequence.

L11 ANSWER 47 OF 82 CA COPYRIGHT 2004 ACS on STN

AN 118:97532 CA
TI **Interferant**-eliminating **biosensors**
IN Heller, Adam; Maidan, Ruben
PA USA
SO Can. Pat. Appl., 26 pp.

PI	CA 2050057	AA	19920905	CA 1991-2050057	19910827
	US 5262305	A	19931116	US 1991-753812	19910903
PRAI	US 1991-664054	A	19910304		

AB **Interferant**-eliminating analyte **sensors** and a sensing process are disclosed for the prevention of erroneous assays. Glucose electrodes are coated with an oxidizing enzyme (peroxidase) which allows H2O2 to selectively oxidize ascorbate, urate, bilirubin, and acetominophen in the presence of glucose. The H2O2 may be added to the assayed soln. or be generated in situ. The oxidizing enzyme is prevented from causing undesired redn. currents at the glucose electrode by preventing contact of the oxidizing enzyme with the glucose electrode or by increasing the applied voltage. The **biosensor** of the invention comprises (1) an electrode; (2) a sensing surface contg. an oxidoreductase in elec. contact with the electrode; and (3) an interferant-eliminating surface contg. a catalyst (e.g. a peroxidase) not in elec. contact with the electrode, the catalyst being capable of catalyzing the oxidn. of a **plurality** of interferants in the presence of an oxidant. cis-Bis(2,2'-bipyridine-N,N')dichloroosmium(II) was reacted with poly(4-vinylpyridine) and the product was further reacted with 2-bromoethylamine-HBr to form an osmium redox polymer which, in combination with glucose oxidase, was applied to an electrode for the glucose-sensing layer. The glucose-sensing layer was crosslinked and a catalyst-contg. layer (peroxidase with glutaraldehyde) was applied on top of the barrier layer. When the electrode was used to det. glucose in the presence of an interferant (ascorbate or acetaminophen), when H2O2 was present the false signal from the **interferant** was substantially **reduced**.

L11 ANSWER 67 OF 82 CA
AN 100:99457 CA
TI Electrochemical sensor with interference-eliminating electrode for biochemical analysis
PA Matsushita Electric Industrial Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.

PI	JP 58171659	A2	19831008	JP 1982-55026	19820401
PRAI	JP 1982-55026		19820401		

AB An electrochem. sensor system consisting of a detector electrode, an interference-eliminating electrode which is an elec.-conductive thin film, electrolyte-contg. buffer, and enzyme is described. For example, for the detn. of cholesterol, an electrolyte-contg. buffer, cholesterol oxidase, and **detector** electrode system were **placed** in a container which has a porous polycarbonate membrane on the bottom. This container was immersed into a sample soln. The side of the porous membrane which contacts the sample soln. was coated with a thin Pt film as **interference**-eliminating electrode to **remove interference** of, e.g. ascorbic acid, uric acid, etc. While a potential of +0.6 V with

respect to a Ag/AgCl electrode was applied between the detector electrode and thin Pt film, a known vol. of serum sample was added to the sample soln. and the current flow was measured. Then without potential application, the current was measured again, and this value was higher than that of the previous current measurement. The increased current corresponds to the amt. of interfering components in the serum sample. Accurate results can be obtained without interference by using the interference-eliminating electrode on the membrane.

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